IN THE CLAIMS:

1. (Original) In an intermediate network device having a plurality of ports for forwarding network messages within a bridged network, a method for efficiently transitioning the ports among a plurality of spanning tree protocol (STP) states, the method comprising the steps of:

    executing the STP at the intermediate network device so as to elect a root of the bridged network and to assign one of the device's ports to a Root Port Role, one or more of the device's ports to an Alternate Port Role, and one or more of the device's ports to a Designated Port Role;

    transitioning the ports assigned to the Root Port Role and the Designated Port Role to a forwarding STP state;

    transitioning the one or more ports assigned to the Alternate Port Role to a discarding STP state;

    receiving a bridge protocol data unit (BPDU) message, the BPDU message having a proposal flag that is asserted; and

    if the BPDU message was received on the port assigned the Root Port Role, leaving the one or more ports assigned to the Designated Port Role in the forwarding STP state, provided that the one or more ports assigned to the Alternate Port Role are in the discarding STP state.

2. (Original) The method of claim 1 wherein the STP substantially complies with the Institute of Electrical and Electronics Engineers (IEEE) 802.1w Rapid Spanning Tree Protocol (RSTP) specification standard.

3. (Original) The method of claim 1 wherein, in response to receiving the BPDU message with the proposal flag asserted, the device does not issue one or more BPDU messages from its ports assigned to the Designated Port Role.

1   4. (Original) The method of claim 3 further comprising the step of issuing a BPDU mes-

2   sage from the port assigned to the Root Port Role, the issued BPDU message having an

3   agreement flag that is asserted.

1   5. (Original) The method of claim 1 further comprising the steps of:

2   transitioning one or more ports assigned to the Designated Port Role to a discard-

3   ing STP state, if the BPDU message with the asserted proposal flag is received on a port

4   other than the port assigned to the Root Port Role; and

5   upon transitioning the one or more ports assigned to the Designated Port Role to

6   the discarding state, issuing a BPDU message from the port on which the BPDU message

7   with the asserted proposal flag was received, the issued BPDU message having an

8   agreement flag that is asserted.

1   6. (Original) The method of claim 1 further comprising the step of, if the one or more

2   ports assigned the Alternate Port Role is not in the discarding STP state, placing such

3   ports in the discarding STP state.

1   7. (Original) An intermediate network device configured to forward network messages

2   within a bridged network, the device having a plurality of ports for connecting the device

3   to one or more network entities, the intermediate network device comprising:

4   a port role selection state machine configured to assign roles to the ports;

5   a port transition state machine configured to transition the ports among a plurality

6   of spanning tree protocol (STP) states depending on the assigned roles; and

7   a sync manager for use in executing the STP, wherein,

8   the port role selection state machine and the port transition state machine

9   cooperate so as to assign one of the device's ports to a Root Port Role, to assign

10   one or more of the device's ports to an Alternate Port Role, and to assign one or

11   more of the device's ports to a Designated Port Role,

12   the port role selection state machine and the port transition state machine

13   further cooperating to transition the ports assigned to the Root Port Role and the

14   Designated Port Role to a forwarding STP state and to transition the one or more

15   ports assigned to the Alternate port role to a discarding STP state, and

16   in response to receiving a bridge protocol data unit (BPDU) message hav-

17   ing a proposal flag that is asserted, the sync manager cooperates with the port

18   transition state machine to leave one or more of the ports assigned to the Desig-

19   nated Port Role in the forwarding STP state, provided that the BPDU message

20   was received on the port assigned the Root Port Role and further provided that the

21   one or more ports assigned to the Alternate Port Role are in a discarding STP

22   state.

1   8. (Original) The intermediate network device of claim 7 further comprising a forwarding

2   engine configured to forward network messages received on a first port to one or more

3   second ports.

1   9. (Original) The intermediate network device of claim 7 wherein the STP executed by

2   the device substantially complies with the Institute of Electrical and Electronics Engi-

3   neers (IEEE) 802.1w Rapid Spanning Tree Protocol (RSTP) specification standard.

1   10. (Original) The intermediate network device of claim 7 further comprising a BPDU

2   message generator, wherein the sync manager cooperates with the BPDU message gen-

3   erator to have a BPDU message issued from the port assigned to the Root Port Role, the

4   issued BPDU message having an agreement flag that is asserted.

1   11. (Original) In an intermediate network device having a plurality of ports for forward-

2   ing network messages within a bridged network, a method for efficiently transitioning the

3   ports among a plurality of spanning tree protocol (STP) states, the method comprising the

4   steps of:

5 executing the STP at the intermediate network device so as to elect a root of the

6 bridged network, to designate a port of the device to be the current root port and to assign

7 one or more of the device's ports to a Designated Port Role;

8 transitioning the ports assigned to the Designated Port Role to a forwarding STP

9 state;

10 receiving a bridge protocol data unit (BPDU) message, the BPDU message having

11 a proposal flag that is asserted; and

12 if the proposal-BPDU message was received on the current root port, leaving the

13 one or more ports assigned to the Designated Port Role in the forwarding STP state.

1 12. (Original) The method of claim 11 further comprising the step of, if the proposal-

2 BPDU message was received on a newly elected root port, identifying the current root

3 port as a previous root port, transitioning the previous root port to a blocking STP state

4 and leaving the one or more ports assigned to the Designated Port Role in the forwarding

5 STP state.

1 13. (Original) The method of claim 12 further comprising the step of issuing a BPDU

2 message from the port on which the proposal-BPDU message was received, the issued

3 BPDU message having an agreement flag that is asserted.

Please add new claims 14 *et al.*

1   14. (New) A method for configuring a router, comprising:

2   executing a spanning tree protocol (STP) on the router, the STP assigning a Root

3   Port Role to a first port of the router;

4   receiving a bridge protocol data unit (BPDU) message, the BPDU message having

5   a proposal flag that is asserted;

6   if the BPDU message is received on the port assigned the Root Port Role, not

7   changing the state of any of the ports in the router; and

8   if the BPDU message is received by a second port, not assigned the Root Port

9   Role, then blocking the first port and assigning the second port as the Root Port Role.

1   15. (New) The method of claim 14, further comprising:

2   keeping other ports assigned as a Designated Port Role in the Designated Port

3   Role.

1   16. (New) The method of claim 14, further comprising:

2   sending an agreement BPDU message by the second port set as the new Root Port

3   Role.

1   17. (New) The method of claim 14, further comprising:

2   if the second port is originally assigned as an Alternate Port Role, then transition-

3   ing other ports assigned to a Designated Port Role to the Alternate Port Role.

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1   18. (New) An apparatus for configuring a router, comprising:

2   means for executing a spanning tree protocol (STP) on the router, the STP assign-

3   ing a Root Port Role to a first port of the router;

4   means for receiving a bridge protocol data unit (BPDU) message, the BPDU mes-

5   sage having a proposal flag that is asserted;

6   if the BPDU message is received on the port assigned the Root Port Role, means

7   for not changing the state of any of the ports in the router; and

8   if the BPDU message is received by a second port, not assigned the Root Port

9   Role, then means for blocking the first port and assigning the second port as the Root

10 Port Role.

1   19. (New) The apparatus of claim 18, further comprising:

2   means for keeping other ports assigned as a Designated Port Role in the Desig-

3   nated Port Role.

1   20. (New) The apparatus of claim 18, further comprising:

2   means for sending an agreement BPDU message by the second port set as the new

3   Root Port Role.

1   21. (New) The apparatus of claim 18, further comprising:

2 if the second port is originally assigned as an Alternate Port Role, then means for

3 transitioning other ports assigned to a Designated Port Role to the Alternate Port Role.

1 22. (New) A router, comprising:

2 the router configured to execute a spanning tree protocol (STP) on the router, the

3 STP assigning a Root Port Role to a first port of the router;

4 a bridge protocol data unit (BPDU) message received by the router, the BPDU

5 message having a proposal flag that is asserted;

6 if the BPDU message is received on the port assigned the Root Port Role, the first

7 port remains set in the Root Port Role and all other ports of the router do not change

8 states; and

9 if the BPDU message is received by a second port, not assigned the Root Port

10 Role, then the first port is blocked and the second port is assigned as the Root Port Role.

1 23. (New) The router of claim 22, further comprising:

2 a port assigned in a Designated Port Role remains in the Designated Port Role.

1 24. (New) The router of claim 22, further comprising:

2 the second port sends an agreement BPDU message when the second port is set as

3 the new Root Port Role.

1 25. (New) The router of claim 22, further comprising:

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2 if the second port is originally assigned as an Alternate Port Role, then other ports

3 originally assigned to a Designated Port Role are transitioned to the Alternate Port Role.

1 26. (New) A computer readable media, comprising:

2 said computer readable media having instruction written thereon for execution on

3 a processor for the practice of configuring a router comprising,

4 executing a spanning tree protocol (STP) on the router, the STP assigning a Root

5 Port Role to a first port of the router;

6 receiving a bridge protocol data unit (BPDU) message, the BPDU message having

7 a proposal flag that is asserted;

8 if the BPDU message is received on the port assigned the Root Port Role, not

9 changing the state of any of the ports in the router; and

10 if the BPDU message is received by a second port, not assigned the Root Port

11 Role, then blocking the first port and assigning the second port as the Root Port Role.

1 27. (New) Electromagnetic signals propagating on a computer network, comprising:

2 said electromagnetic signals carrying instructions for execution on a proc-

3 essor for the practice of configuring a router comprising,

4 executing a spanning tree protocol (STP) on the router, the STP assigning a Root

5 Port Role to a first port of the router;

6 receiving a bridge protocol data unit (BPDU) message, the BPDU message having

7 a proposal flag that is asserted;

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8   if the BPDU message is received on the port assigned the Root Port Role, not

9   changing the state of any of the ports in the router; and

10   if the BPDU message is received by a second port, not assigned the Root Port

11   Role, then blocking the first port and assigning the second port as the Root Port Role.